

### ***Claim Rejections - 35 USC 103***

3. Independent claim 1 has been rejected under 35 USC 103(a) as being unpatentable over Grote et al (U.S. 6,293,632) or Betts et al (U.S. 4,237,728).

4. The Applicant respectfully submits that Grote does *not* disclose or claim a "piezoelectric-powered tire revolution counter", which is the subject of the present application's claim 1. As disclosed in the referenced paragraph of lines 17-32, column 4 of Grote, "the piezoelectric element 44 situated inside a primary fluid chamber 46..." is not *mounted in a pneumatic tire* (as stated in the application's claim 1). Also, "When an activating voltage is applied to piezoelectric element 44, it controllably expands...", which is the opposite of the applicant's claimed use of the piezoelectric element for *powering* the tire revolution counter. Other differences between the invention described in the subject application and the material disclosed in Grote are further clarified by changes to claim 1 that are discussed hereinbelow.

A significant difference between the subject invention and the prior art as disclosed in Betts (and also in Grote), is disclosed in the subject application's detailed description on page 14, lines 29-34, in particular: "The piezo element 340 is suitably attached to or embedded within the inner wall of the tire, under the tread or the sidewall...". Based on this disclosure, the independent claim 6 includes the text of the original claim 1 with the limiting phrase: --attached to or embedded within a wall of-- inserted before the words: "a pneumatic tire in a manner" in place of the words: [mounted in]. This change distinguishes the claimed invention from the prior art disclosed in Betts, wherein the piezoelectric element is mounted on the wheel (see, for example, the first four lines of the abstract, or column 3, lines 36 - 42). This change also further distinguishes the claimed invention from the prior art disclosed in Grote, wherein the piezoelectric element is mounted in a fluid chamber external to the tire.

Further clarification of the invention claimed in the independent claim 6 has been implemented by inserting phrases concerning "energy pulses", as supported by the detailed description on page 15, lines 20-25. Specifically: the words, --, thereby generating energy pulses-- are inserted after "as the tire rotates"; the words, --for receiving the energy pulses,-- replace the word [and] between "piezoelectric element" and "having an output"; and the words, --for receiving the energy pulses-- are inserted after "a revolution counting circuit connected to the piezoelectric element".

Finally, the structure of the independent claim is changed by replacing [including] with

--comprising-- in the first clause, and by replacing [characterized in that] with --wherein--.

The Applicant respectfully submits that the re-drafted independent claim 6 is patentably novel and non-obvious over the prior art of Grote and Betts.

Claim 11, depending on independent claim 6, is a new claim that adds further limitations to the location of the piezoelectric element as supported by the detailed description on page 14, lines 29-34 as cited above, in particular that the element is "attached to, or embedded within, an *inner* wall of the pneumatic tire *under a tread portion* of the pneumatic tire."

#### ***Allowable Subject Matter***

9. The Examiner has stated that claims 2-5 would be allowable if rewritten to overcome the rejections under USC 112, and if rewritten in independent form including all of the limitations of the base claim and any intervening claims. As stated above, the revised claim 10, herewith submitted, is believed to overcome the rejection of claim 5 under USC 112. Since the applicant believes that the new independent claim 6 has been rewritten in a way that makes it allowable, the claims depending from it should also be allowable and are therefore not rewritten in independent form.

Claim 7 substantially copies claim 2, with appropriate re-numbering to show its dependence on claim 6 (original claim 1).

Claims 8 and 9 substantially copy claims 3 and 4, respectively, with appropriate re-numbering to show their dependence on claim 7 (original claim 2).

Claim 10 substantially copies claim 5, with appropriate re-numbering to show its dependence on claim 6 (original claim 1), and also includes several clarifying changes. Changes that resolve antecedency problems are discussed in paragraph 2 hereinabove. The function of the signal processing circuit element is clarified by inserting the words, --for processing a signal comprising the energy pulses generated by the piezoelectric element-- after "a signal processing circuit element", as supported by the detailed description on page 16, lines 28 - 34.

Claim 11 is a new dependent claim discussed in paragraph 4 hereinabove.

#### **CONCLUSION**

A clean set of claims is enclosed. Favorable re-examination and consideration are respectfully requested.



Respectfully submitted,

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